Test Definition: IODCU

Iodine/Creatinine Ratio, Random, Urine

Overview

Useful For

Assessment of iodine toxicity or recent iodine exposure using a random urine collection

Monitoring iodine excretion rate as index of replacement therapy

Profile Information

Test Id	Reporting Name	Available Separately	Always Performed
IODC	Iodine/Creat Ratio, U	No	Yes
CRETR	Creatinine, Random, U	No	Yes

Special Instructions

- Metals Analysis Specimen Collection and Transport

Method Name

IODC: Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
CRETR: Enzymatic Colorimetric Assay

NY State Available

Yes

Specimen

Specimen Type

Urine

Ordering Guidance

Due to the significant variation in the rate of excretion over the course of a day, a 24-hour collection is preferred. For more information see UIOD / Iodine, 24 Hour, Urine.

Specimen Required

Patient Preparation: High concentrations of gadolinium and iodine are known to potentially interfere with inductively coupled plasma mass spectrometry-based metal tests. If either gadolinium- or iodine-containing contrast media has been administered, **a specimen should not be collected for 96 hours.**
Supplies: Urine Tubes, 10 mL (T068)
Collection Container/Tube: Clean, plastic urine collection container
Submission Container/Tube: Plastic, 10-mL urine tube or a clean, plastic aliquot container with no metal cap or glued insert
Specimen Volume: 3 mL

Collection Instructions:

1. Collect a random urine specimen.
2. See Metals Analysis Specimen Collection and Transport for complete instructions.

Specimen Minimum Volume

2 mL

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Urine	Refrigerated (preferred)	28 days	
	Ambient	14 days	
	Frozen	28 days	

Clinical & Interpretive

Clinical Information

Iodine is an essential element for thyroid hormone production.

The measurement of urinary iodine is preferred for assessment of toxicity, recent exposure, and monitoring iodine excretion rate as an index of replacement therapy.

Reference Values

0-17 years: Not established

> or =18 years: <584 mcg/g creatinine

Interpretation

Measurement of urinary iodine excretion provides the best index of dietary iodine intake and deficiency is generally indicated when the concentrations are below 100 mcg/L. For deficiency, 10 repeat random urines are recommended.

World Healthcare Organization (WHO) Criteria for Assessing Iodine Status

Children older than 6 years and adults

Median urinary iodine (mcg/L)	Iodine intake	Iodine status
<20	Insufficient	Severe deficiency
20-49	Insufficient	Moderate deficiency
50-99	Insufficient	Mild deficiency
100-199	Adequate	Adequate nutrition
200-299	Above requirements	May pose a slight risk of more than adequate
>299	Excessive	Risk of adverse health consequences

Pregnant women

Median urinary iodine (mcg/L)	Iodine intake
<150	Insufficient
150-249	Adequate
250-499	Above requirements
>499	Excessive

Lactating women and children younger than 2 years

Median urinary iodine (mcg/L)	Iodine intake
<100	Insufficient
>99	Adequate

Cautions

Administration of iodine-based contrast media and drugs containing iodine, such as amiodarone, will yield elevated results.

Clinical Reference

1. Rifai N, Chiu RWK, Young I, Burnham CAD, Wittwer CT, eds. Tietz Textbook of Laboratory Medicine. 7th ed. Elsevier; 2023

2. Knudsen N, Christiansen E, Brandt-Christensen M, Nygaard B, Perrild H. Age- and sex-adjusted iodine/creatinine ratio. A new standard in epidemiological surveys? Evaluation of three different estimates of iodine excretion based on casual urine samples and comparison to 24 h values. Eur J Clin Nutr. 2000;54(4):361-363

3. Liberman CS, Pino SC, Fang SL, Braverman LE, Emerson CH. Circulating iodide concentrations during and after pregnancy. J Clin Endocrinol Metab. 1998;83(10):3545-3549

4. Pfeiffer CM, Sternberg MR, Schleicher RL, Haynes BM, Rybak ME, Pirkle JL. The CDC's Second National Report on Biochemical Indicators of Diet and Nutrition in the U.S. Population is a valuable tool for researchers and policy makers. J Nutr. 2013;143(6):938S-947S

5. U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry: Toxicological Profile for Iodine. HHS; 2004. Accessed November 12, 2025. Available at www.atsdr.cdc.gov/ToxProfiles/tp158.pdf

6. Leung AM, Braverman LE. Consequences of excess iodine. Nat Rev Endocrinol. 2014;10(3):136-142. doi:10.1038/nrendo.2013.251

7. Beckford K, Grimes CA, Margerison C, et al. A systematic review and meta-analysis of 24-h urinary output of children and adolescents: impact on the assessment of iodine status using urinary biomarkers. Eur J Nutr. 2020;59(7):3113-3131. doi:10.1007/s00394-019-02151-w

Performance

Method Description

Iodine:

The metal of interest is analyzed by inductively coupled plasma mass spectrometry.(Unpublished Mayo method)

Creatinine:

The enzymatic method is based on the determination of sarcosine from creatinine with the aid of creatininase, creatinase, and sarcosine oxidase. The liberated hydrogen peroxide is measured via a modified Trinder reaction using a colorimetric indicator. Optimization of the buffer system and the colorimetric indicator enables the creatinine concentration to be quantified both precisely and specifically.(Package insert: Creatinine plus ver 2. Roche Diagnostics; V15.0, 03/2019)

PDF Report
No

Day(s) Performed
Monday through Friday

Report Available
2 to 4 days

Specimen Retention Time
14 days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Superior Drive

Fees & Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification
This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information
83789
82570

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
IODCU	Iodine/Creat Ratio, Random, U	55928-6

Result ID	Test Result Name	Result LOINC® Value
CRETR	Creatinine, Random, U	2161-8
610709	Iodine/Creat Ratio, U	55928-6
614424	Iodine Concentration Interpretation	77202-0

614370	Iodine Concentration	2495-0